IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1 (Currently Amended) A simulation method ~~of~~ for simulating a behavior of a mechanism of a mechanical device that is regulated by a mechanism control software ~~to be simulated~~ along a time axis on the basis of description data using a hybrid model of the mechanical device, comprising:

parsing the description data to extract a description of continuous system equations, a description of switching of the continuous system equations upon state transition, and a description of an additional process other than any process relating to the continuous system equations;

generating a first program on the basis of the extracted description of the continuous system equations;

generating a second program on the basis of the extracted description of the switching;

generating a third program on the basis of the extracted description of the additional process;

converting, by executing the first program, data structures of all the continuous system equations into ~~other data~~ tree structures as internal data expressions that allow execution of a simulation;

starting a simulation of the mechanism after a completion of converting the continuous system equations;

switching, by executing the second program, the converted continuous system equations to activate appropriate one of the converted continuous system equations and

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deactivate another instead, in response to occurrence of a first event that is detected by the second program;

executing the simulation to output data that expresses the behavior of the mechanism, wherein the activated one of the continuous system equations is solved by numerical integration along the time axis according to the converted data structure, wherein the data is supplied to the mechanism control software as a response to a control signal provided from the mechanism control software; and

executing the third program to execute the additional process in response to occurrence of a second event that is detected by the second program.

Claim 2 (Cancelled).

Claim 3 (Currently Amended):   The method according to claim 1, further comprising:

exchanging a control signal with an external system the mechanism control software through an input/output port in accordance with the third program, the external system including a mechanism control software system that control the mechanism.

Claim 4 (Original):   The method according to claim 1, wherein the first event contains an evaluation result of internal variables of the mechanism.

Claim 5 (Currently Amended):   A simulation program product computer readable storage medium storing instructions of a computer program for simulating a behavior of a mechanism of a mechanical device that is regulated by a mechanism control software to be simulated along a time axis on the basis of description data using a hybrid model of the

mechanical device, which when executed by a computer results in performance of steps ~~the~~

~~simulation program product~~ comprising:

~~means for instructing a computer to parse~~ parsing the description data to extract a

description of continuous system equations, a description of switching of the continuous

system equations upon state transition, and a description of an additional process other than

any process relating to the continuous system equations;

~~means for instructing the computer to generate~~ generating a first program on the basis

of the extracted description of the continuous system equations;

~~means for instructing the computer to generate~~ generating a second program on the

basis of the extracted description of the switching;

~~means for instructing the computer to generate~~ generating a third program on the basis

of the extracted description of the additional process;

~~means for instructing the computer to convert~~ converting,~~means for instructing the~~

~~compute~~ by executing the first program, data structures of all the continuous system

equations into ~~other data~~ tree structures as internal data expressions that allow execution of a

simulation;

starting a simulation of the mechanism after a completion of converting the

continuous system equations;

~~means for instructing the computer to switch~~ switching, by executing the second

program, the converted continuous system equations to activate appropriate one of the

converted continuous system equations and deactivate another instead, in response to

occurrence of a first event that is detected by the second program;

~~means for instructing the computer to execute~~ executing the simulation to output data

that expresses the behavior of the mechanism, wherein the activated one of the continuous

system equations is solved by numerical integration along the time axis according to the

converted data structure, wherein the data is supplied to the mechanism control software as a

response to a control signal provided from the mechanism control software; and

~~means for instructing the computer to execute~~ executing the third program to execute

the additional process in response to occurrence of a second event that is detected by the

second program.

Claim 6 (Cancelled).

Claim 7 (Currently Amended): The program product according to claim 5, further

comprising:

means for instructing the computer to exchange a control signal with ~~an external~~

~~system~~ the mechanism control software through an input/output port in accordance with the

third program~~, the external system including a mechanism control software system that~~

~~control the mechanism~~.

Claim 8 (Currently Amended): The ~~program product~~ computer readable storage

medium according to claim 5, wherein the first event contains an evaluation result of internal

variables of the mechanism.

Claim 9-20 (Cancelled).